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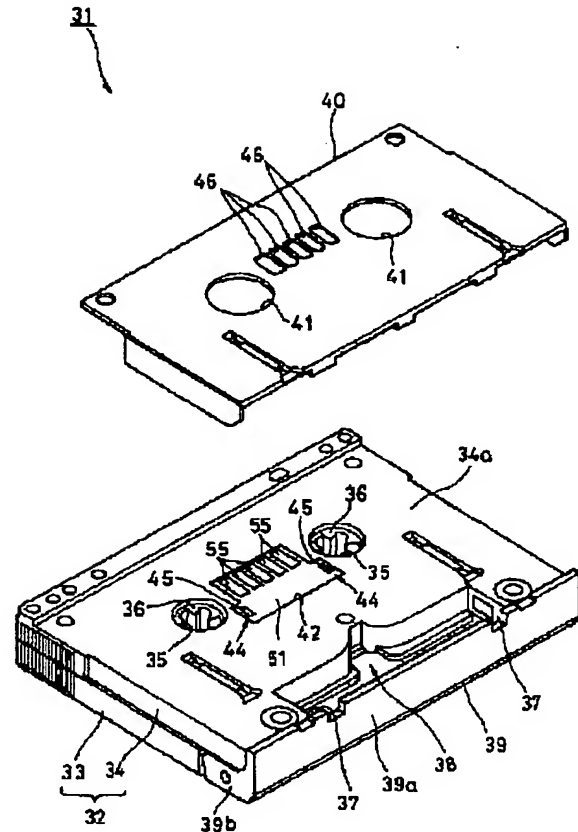
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TITLE : RECORDING MEDIUM HOUSING
CASSETTE



ABSTRACT : PROBLEM TO BE SOLVED: To reduce the time taken for readying the recording/reproducing of a recording medium after charging a recording medium housing cassette in a recording-reproducing unit.

SOLUTION: A cassette body 32 has a slider 40 as a stop for opening and closing specified opening, an IC substrate 51 to be a memory element device is fitted and fixed to a part surface corresponding to the slide, connecting terminals 55 provided on the IC substrate 51 are developed at the outer surface, and a connection window 46 for exposing the connecting terminals 55 to outside at an open position is formed at the slider 40 so that connecting terminals of a detector contacts the connecting terminals 55 through the connection window 46.

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CLAIMS

[Claim(s)]

[Claim 1] The record-medium receipt cassette which is a record-medium receipt cassette which equipped the body of a cassette with which a record medium is contained with the callus which opens and closes predetermined opening, and is characterized by fixing the storage element equipment with which necessary information is memorized by the aspect to which the above-mentioned callus of the above-mentioned body of a cassette corresponds, and making it expose the connection terminal of the above-mentioned storage element equipment by aperture actuation of the above-mentioned callus.

[Claim 2] The record-medium receipt cassette which forms the receipt crevice of the above-mentioned storage element equipment in the base of the above-mentioned body of a cassette, carries out receipt immobilization of the above-mentioned storage element equipment in a record-medium receipt cassette according to claim 1, and is characterized by having arranged the connection terminal of the above-mentioned storage element equipment to the necessary aspect of the above-mentioned body of a cassette exposed in the open position of the above-mentioned callus.

[Claim 3] The record-medium receipt cassette which forms the receipt crevice of the above-mentioned storage element equipment in the base of the above-mentioned body of a cassette, carries out receipt immobilization of the above-mentioned storage element equipment in a record-medium receipt cassette according to claim 1, and is characterized by preparing the window part which exposes the connection terminal of the above-mentioned storage element equipment to the above-mentioned callus in an open position.

[Claim 4] It is the record-medium receipt cassette characterized by fixing the above-mentioned storage element equipment to the receipt crevice of the above-mentioned storage element equipment through a fixed means in the periphery section in a record-medium receipt cassette according to claim 2 or 3.

[Claim 5] The record-medium receipt cassette characterized by protruding an engagement boss on the periphery section of the receipt crevice of the above-mentioned storage element equipment, forming an engagement pore in the substrate side of the above-mentioned storage element equipment in a record-medium receipt cassette according to claim 2 or 3, engaging the above-mentioned engagement boss and the above-mentioned engagement pore, and fixing the above-mentioned storage element equipment to the above-mentioned receipt crevice.

[Claim 6] It is the record-medium receipt cassette characterized by constituting by the presser-foot pin member to which the above-mentioned fixed means protrudes on the periphery section of the receipt crevice of the above-mentioned storage element equipment in a record-medium receipt cassette according to claim 4, and the engagement section formed in the substrate side of the above-mentioned storage element equipment.

[Claim 7] It is the record-medium receipt cassette characterized by constituting by the joining boss to which the above-mentioned fixed means protrudes on the periphery section of the receipt crevice of the above-mentioned storage element equipment in a record-medium receipt cassette according to claim 4, and the engagement section which is formed in the substrate side of the above-mentioned storage element equipment, and engages with the above-mentioned

joining boss.

[Claim 8] The record-medium receipt cassette characterized by forming in the receipt crevice of the above-mentioned storage element equipment the hold section which can hold the storage element section of the above-mentioned storage element equipment in a record-medium receipt cassette according to claim 2 or 3.

[Claim 9] The above-mentioned window part prepared in the above-mentioned callus in a record-medium receipt cassette according to claim 3 is a record-medium receipt cassette characterized by forming as a division window hole of the number of connection terminals and the same number of the above-mentioned storage element equipment.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to record-medium receipt cassettes, such as a tape cassette applied to a digital audio tape recorder (DAT) and digital data storage (DDS).

[0002]

[Description of the Prior Art] In recent years, diversification and the formation of small lightweight of an AV equipment, a computer device, etc. of a record playback device are progressing, and the tape cassette of the magnetic tape as a magnetic-recording medium of high recording density is developed by small [, such as a digital audio tape cassette (DAT cassette),] in connection with this. The magnetic tape cassette as a receipt cassette of these magnetic-recording media came to be used using the high recording density also as an external record medium of the digital data storage (DDS) in a computer device, although developed as a magnetic-recording medium for AV equipments.

[0003] The tape cassette of this conventional digital audio tape (DAT) equips the body of a cassette with which a magnetic tape is contained with the callus which opens and closes necessary opening, and is constituted. That is, the conventional tape cassette is constituted as shown in drawing 21 - drawing 23 , drawing 21 disassembles and shows a tape cassette, drawing 22 shows the appearance of a tape cassette, and drawing 23 shows un-using it and the busy condition of a tape cassette.

[0004] In this drawing 21 - drawing 23 , ***** 1 shows the whole tape cassette, the body 2 of a cassette of this tape cassette 1 ****s the top half 3 and the bottom half 4, coalesces by the stop or welding, and is formed in box-like, and magnetic tape T is contained in this body 2 of a cassette. Receipt arrangement of the revolution of the reel hubs 6 and 6 of the couple which the reel shaft insertion holes 5 and 5 of a left Uichi pair were formed, was located on this reel shaft insertion hole 5 and 5, and wound magnetic tape T around base section 4a of the bottom half 4 who forms this body 2 of a cassette is enabled. Derivation disclosure of the magnetic tape T wound around the reel hubs 6 and 6 is carried out at the front-face side of the body 2 of a cassette through the tape-guide sections 8 and 8 of the right and left which inserted with the slippage sheets 7 and 7 from the upper and lower sides, were laid on the bottom half's 4 base section 4a, and were prepared in the bottom half's 4 anterior part both sides.

[0005] Moreover, the part corresponding to the background of magnetic tape T exposed by the bottom half's 4 anterior part in the front face of the body 2 of a cassette, namely, when the pocket section 9 for loading of a concave configuration is formed between both the tape-guides section 8 and 8 and a magnetic recorder and reproducing device is loaded with the tape cassette 1 the guide member for tape loading by the side of equipment invades into this pocket section 9, and magnetic tape T is pulled out ahead of the body 2 of a cassette (tape loading) -- it is made like.

[0006] On the other hand, the transparence window part 10 is formed in the top half 3, and he can check the amount of magnetic tape T currently wound around the reel hubs 6 and 6 through this transparence window part 10. In the top [this] half's 3 front end section, moreover, the front lid 11 which opens and closes the magnetic tape outcrop by the side of the front face of

the body 2 of a cassette In the side plate sections 11b and 11b formed in the both ends of the primary plate section 11a, it is attached in the vertical direction rotatable. In the non-busy condition of the tape cassette 1, both the tape-guides section 8 by the side of the front face of the body 2 of a cassette and the magnetic tape exposure part between eight are blockaded with the front lid 11. Moreover, if a magnetic recorder and reproducing device is loaded with the tape cassette 1, the front lid 11 carries out aperture rotation upwards according to the device by the side of equipment, and it is made as [expose / magnetic tape T]. Lock discharge actuation of the lock member 12 which carries out the baffle of the reel hubs 6 and 6 with aperture actuation of this front lid 11 is carried out.

[0007] And in this tape cassette 1, the underside side of base section 4a of the bottom half 4 of the body 2 of a cassette is equipped with the slider 13 as a callus of opening possible [sliding of a cross direction]. Corresponding to the reel shaft insertion holes 5 and 5 by the side of the bottom half 4, the reel shaft insertion holes 14 and 14 be form in this slider 13, and it be always energize with the spring 15 to the front, it be in a front closing location at the time of un-use [of the tape cassette 1] it, and be in the condition of having blockade the reel shaft insertion holes 5 and 5 and the pocket section 9 by the side of the bottom half 3 who be necessary opening of the body 2 of a cassette. Moreover, if a magnetic recorder and reproducing device is loaded with the tape cassette 1, while a slider 12 slides to a back aperture location, the reel shaft insertion holes 14 and 14 put on the reel shaft insertion holes 5 and 5 by the side of the bottom half 4 by this and these reel shaft insertion holes 5 and 5 are opened according to the device by the side of equipment, the pocket section 9 will be opened.

[0008] Thus, the tape cassette 1 has the front lid 11 and a slider 12 in a closing location to the body 2 of a cassette at the time of un-use it, as show in A of drawing 22 and drawing 23, the front face side disconnection section, the reel shaft insertion holes 5 and 5, and the pocket section 9 of the body 2 of a cassette are blockade, the inside of the body 2 of a cassette will be in a sealing condition, and magnetic tape T contain is protect, without dust etc. adhere.

[0009] Moreover, while miniaturizing the tape cassette for record playback, in addition to record/playback to the tape for record playback, for example, a magnetic tape, it has many functions, such as the die length of recording information or a magnetic tape, and an elimination prevention means. A metaphor is set to tape cassettes for record playback, such as a digital video tape cassette. The integrated-circuit substrate (henceforth IC substrate) as storage made to face [a part for a connection terminal area] the predetermined location of the vertical half who constitutes this is incorporated in the tape cassette for record playback. It connects with the contact terminal of this IC substrate, and the external terminal of the information detection equipment with which the magnetic recorder and reproducing device etc. is equipped, and there is a tape cassette for record playback constituted so that the recording information of the receipt tape memorized by the IC memory of IC substrate could be searched.

[0010] Thus, the tape cassette for record playback and IC substrate incorporating IC substrate as storage are shown in drawing 24 - drawing 27. Drawing 24 shows the bottom half of the tape cassette for record playback, drawing 25 shows IC substrate, and drawing 26 shows the cross section of IC substrate.

[0011] This tape cassette for record playback provides in a part for one corner of the back of the predetermined location 21 of the body of a cassette, for example, the bottom half of the shape of a square, the substrate mounting section 22 which consists of the so-called clearance section of a rear face, a field long and slender to parallel, and predetermined width of face, as shown in drawing 24. Two or more connection window parts 23 which the connection terminal of IC substrate mentioned later faces the method of outside are formed in the rear face of this substrate mounting section 22.

[0012] Moreover, also in the bottom [this] half 21, the reel shaft insertion holes 24 and 24 are formed in base section 21a, the tape-guide sections 25 and 25 are formed in front both sides, and the pocket section 26 for loading of a concave configuration is formed between this tape-guide section 25 and 25.

[0013] The IC substrate 27 constituted on the other hand as shown in the bottom [this] half's 21 substrate mounting section 22 at drawing 25 and drawing 26 is incorporated. Substrate

section 27a of this IC substrate 27 is created by the epoxy resin or other engineering plastics (POM etc.), and is created with plastic material equivalent to the vertical half of the body of a cassette currently formed by plastics, such as ABS plastics. While carrying out mounting loading of the IC chip 28 as a storage element at a Johan section [of substrate section 27a of this IC substrate 27], and inner surface side and covering with protective layer 27b, the connection terminal 29 is formed in the outside surface side of the bottom half section, and it is constituted.

[0014] Thus, for including in the substrate mounting section 22 of the bottom half 21 of the body of a cassette which mentioned above the IC substrate 27 equipped with the IC chip 28 constituted, as shown in A of drawing 27 , turn the connection terminal 29 outside, and substrate 27a is made to engage with the both-sides slots 22a and 22b of the substrate mounting section 22 from the upper part, and press insertion is carried out. Thus, if the IC substrate 27 is built into the bottom half's 21 substrate mounting section 22, as shown in B of drawing 27 , the connection terminal 29 will be in the condition of having faced outside through the connection window part 23.

[0015] Thus, where the IC substrate 27 is built into the bottom half 21, a top half (not shown) is put and assembled from the upper part. That is, the IC substrate 27 is incorporated and fixed in the body of a cassette, where the vertical edge of substrate section 27a is put between a vertical half.

[0016] thus, detection of the information detection equipment which it had in equipment by loading a magnetic recorder and reproducing device with the tape cassette for record playback constituted -- business -- the connection terminal 29 of the IC substrate 27 is contacted by the external terminal through the connection window part 23. Information retrieval, such as detection of the information on the receipt magnetic tape memorized by the storage element 28 of the IC substrate 27 by this, i.e., the address etc., is performed.

[0017]

[Problem(s) to be Solved by the Invention] However, IC substrate is not built into the tape cassette which information detection equipment is not carried in the digital audio tape recorder (DAT tape recorder) mentioned above and digital data storage (DDS), therefore is used for this DAT tape recorder etc. and which was mentioned above. Therefore, in order to have performed retrieval of a receipt magnetic tape, for example, the address, it was the method which writes the address in some magnetic tapes, and when carrying out record playback of the data, after searching the empty address, where the address of required data is searched, data will be written, and retrieval had taken time amount.

[0018] Moreover, since address retrieval area is located in the point of a magnetic tape and a magnetic tape is constituted so that it may surely rewind after it reads required data, the count of contact with a head will increase, and it will be easy to receive a damage, therefore the endurance (activity life) of a magnetic tape will be contracted.

[0019] Moreover, in the tape cassette for record playback which incorporated and carried IC substrate as an information storage device, since IC substrate is a flat side, when a both-sides edge and the thickness direction tend to be put by the vertical half and it is going to fix in the inclusion activity to the body of a cassette, it is easy to separate from IC substrate during this inclusion activity from between vertical halves, and a problem is in workability.

[0020] Moreover, since the connection terminal was always exposed through the connection window part of the body of a cassette, it was damaged, or soiled by adhesion of dust, finger fat, etc., and this IC substrate had the problem of it becoming impossible for incorporation of information and read-out to carry out to accuracy etc.

[0021] This invention by having been made in view of this point, and incorporating and carrying IC substrate as storage also in record-medium receipt cassettes, such as a digital audio tape cassette (DAT cassette) While raising compaction and endurance of the retrieval time of the information data of a receipt record medium etc. and being able to ensure [easily and] an assembly activity, it aims at offering the record-medium receipt cassette which enabled it to prevent certainly breakage on the connection terminal of IC substrate, dirt, etc.

[0022]

[Means for Solving the Problem] It constitutes so that it may fix the storage element equipment with which this invention is the record-medium receipt cassette which equipped the body of a cassette with which a record medium is contained with the callus which opens and closes necessary opening, and necessary information is memorized by the aspect to which the callus of the body of a cassette corresponds and the connection terminal of this storage element equipment may be exposed by aperture actuation of a callus, in order to attain the above-mentioned object.

[0023] In the above-mentioned configuration, the receipt crevice of storage element equipment is formed in the base of the body of a cassette, receipt immobilization of the storage element equipment is carried out, and this connection terminal is arranged and constituted in the necessary aspect of the body of a cassette exposed in the open position of a callus.

[0024] Moreover, in the above-mentioned configuration, the receipt crevice of storage element equipment is formed in the base of the body of a cassette, receipt immobilization of the storage element equipment is carried out, and the window part which exposes the connection terminal of storage element equipment to a callus in an open position is prepared and constituted.

[0025] And in the above-mentioned configuration, storage element equipment is fixable to the receipt crevice of the storage element equipment by the side of the body of a cassette through a fixed means in the periphery section.

[0026] Moreover, the above-mentioned fixed means forms an engagement boss in the receipt crevice side of storage element equipment, and forms the engagement section in the substrate side of storage element equipment, it can constitute and an engagement boss can be formed by the presser-foot pin member and the joining boss.

[0027] Moreover, in the above-mentioned configuration, it is desirable to form in the receipt crevice of storage element equipment the hold section which can hold the storage element section of storage element equipment.

[0028] Moreover, as for the window part prepared in a callus, in the above-mentioned configuration, it is desirable to form as a division window hole of the number of connection terminals and the same number of storage element equipment.

[0029] The record-medium receipt cassette by this invention constituted as mentioned above can shorten the retrieval time of the information data of a receipt record medium etc. by having storage element equipment, and at the time of un-using [of a cassette] it, the connection terminal of storage element equipment is covered with a callus, and is concealed, it is exposed only at the time of the activity of a cassette, and an external contact and contact are attained.

[0030] Moreover, by being contained by the receipt crevice formed in the base of the body of a cassette, and being fixed by the fixed means, the omission at the time of an assembly activity are prevented, and storage element equipment can do an assembly activity easily.

[0031]

[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained with reference to drawing 1 - drawing 20 .

[0032] The gestalt of this operation constitutes the record-medium receipt cassette concerning this invention as a cassette which contains this magnetic tape in the shape of seal, using a magnetic tape as a record medium. And in the gestalt of this operation, storage element equipment is built into this cassette, and it constitutes so that the information data of a receipt record medium can be searched.

[0033] First, it is drawing which the tape cassette of an example which applied this invention decomposed drawing 1 the part and was seen from the underside side to explain the structure of the tape cassette as a record-medium receipt cassette of the gestalt of this operation with reference to drawing 1 - drawing 3 , drawing 2 is the bottom view of the tape cassette shown in drawing 1 , and drawing 3 is a perspective view by the side of the inner surface of a slider.

[0034] The outline structure of the tape cassette 31 of the gestalt of this operation is almost the same as that of the tape cassette shown in drawing 21 mentioned above - drawing 23 , the body 32 of a cassette ****s the top half 33 and the bottom half 34, coalesces by the stop or welding, and is formed in box-like, and a magnetic tape is contained in this body 32 of a cassette. Receipt arrangement of the revolution of the reel hubs 36 and 36 of the couple which the reel

shaft insertion holes 35 and 35 of a left Uichi pair were formed, was located on this reel shaft insertion hole 35 and 35, and wound the magnetic tape is enabled the underside side of this body 32 of a cassette at the bottom half's 34 base section 34a. This magnetic tape is inserted with a slippage sheet from the upper and lower sides like the tape cassette mentioned above, and is contained between the vertical half 33 and 34, and derivation disclosure is carried out at the front-face side of the body 32 of a cassette through the tape-guide sections 37 and 37 prepared in the bottom half's 34 anterior part both sides. Moreover, between both the tape-guides section 37 of the bottom half's 34 anterior part, and 37, the pocket section 38 for loading of a concave configuration is formed, the guide member for tape loading by the side of a magnetic recorder and reproducing device invades, and it is made as [pull / a magnetic tape / ahead of the body 32 of a cassette].

[0035] On the other hand, the front lid 39 which opens and closes the magnetic tape outcrop by the side of the front face of the body 32 of a cassette is attached in the vertical direction rotatable at the top half's 33 front end section in side plate section 39b formed in the both ends of the primary plate section 39a, and both the tape-guides section 37 by the side of the front face of the body 32 of a cassette and the magnetic tape exposure part between 37 are blockaded with the front lid 39 in the condition of not using [of the tape cassette 31] it. This front lid 39 carries out aperture rotation upwards according to the device by the side of a magnetic recorder and reproducing device, a magnetic tape is exposed and lock discharge actuation of the lock member which carries out the baffle of the reel hub with aperture rotation actuation of this front lid 39 is carried out.

[0036] Moreover, the underside, i.e., underside of bottom half's 34 base section 34a, side of the body 32 of a cassette is equipped with the slider 40 as a callus of opening possible [sliding of a cross direction]. The bottom half's 34 reel shaft insertion holes 35 and 35 and the corresponding reel shaft insertion holes 41 and 41 are formed in this slider 40, and it sets in the sliding location (closing location) to the front. The bottom half's 34 reel shaft insertion holes 35 and 35 and the pocket section 38 for loading are blockaded. While making opening of the bottom half's 34 reel shaft insertion holes 35 and 35 carry out outside according to a response of the reel shaft insertion holes 41 and 41 in the sliding location (aperture location) to back, the pocket section 38 is opened.

[0037] thus, also in the tape cassette 31 of the gestalt of this operation, when the front lid 39 and a slider 40 be in a closing location to the body 32 of a cassette at the time of un-use it, the front face side disconnection section, the reel shaft insertion holes 35 and 35, and the pocket section 38 of the body 2 of a cassette be blockade, the inside of the body 32 of a cassette will be in a sealing condition, and the magnetic tape contain be protect, without dust etc. adhere.

[0038] And the tape cassette 31 of the gestalt of this operation is incorporated in the integrated-circuit substrate (IC substrate) as storage element equipment so that it may connect with the external terminal of the information detection equipment with which the record regenerative apparatus is equipped and the recording information of a receipt magnetic tape can be searched.

[0039] That is, the underside side of the body 32 of a cassette of the tape cassette 31 is equipped with the IC substrate 51 as storage element equipment, and it is made as [expose / the connection terminal later mentioned in the aperture location of a slider 40].

[0040] As shown in drawing 4 - drawing 6, the IC substrate 51 built into this tape cassette 31 forms IC loading aspect 52a in the inner surface side of the first portion of substrate section 51a created by the epoxy resin, other engineering plastics (POM), etc., and has formed terminal area side 52b in the outside surface side of the section in the second half. The IC chip 53 which records information is carried in the location of the center of abbreviation, this IC chip 53 has structure covered with the protective layer 54, and this IC chip 53 is connected with each of two or more connection terminals 55 with which terminal area side 52b was prepared at this IC loading aspect 52a.

[0041] Thus, the IC substrate 51 constituted is contained at the underside side of base section 34a of the bottom half 34 who is the underside side of the body 32 of a cassette of the tape cassette 31. That is, the receipt crevice 42 which contains the IC substrate 51 as shown in

drawing 1 , drawing 2 and drawing 4 - drawing 6 is established in the aspect corresponding to the slider 40 by the side of the underside of the bottom half's 34 base section 34a, and the hold section 43 which carries out fit-in hold of the protective layer 53 of the IC substrate 51 at the inner surface side of this receipt crevice 42 is formed. This receipt crevice 42 is the configuration and magnitude by which fitting is carried out, without substrate section 51a of the IC substrate 51 shaking. The same [as that of the thickness of substrate section 51a / almost] or it is formed in the depth beyond it, and the hold section 43 is the magnitude in which a protective layer 54 is fitted with sufficient allowances, and it is formed in the example of a graphic display in the shape of [which penetrates the bottom half's 34 base section 34a] opening so that the end may not arise.

[0042] And as the IC substrate 51 shows the receipt crevice 42 established in the underside side of the bottom half's 34 base section 34a in this way at drawing 1 and drawing 4 - drawing 7 , on the bottom half's 34 underside, and an abbreviation same side, fitting is carried out and engagement immobilization is carried out by the fixed means 44. This fixed means 44 is set in the gestalt of this operation. A head carries out projection formation of the hook-like bosses 45 and 45 to one in detail the inner circumference edge of the receipt crevice 42, and the first half in which the both sides of the hold section 43 are counterered at the bottom half 34 in the edges-on-both-sides section of width-of-face Hirobe 42a. Corresponding to these bosses 45 and 45, the engagement holes 56 and 56 are formed in the edges-on-both-sides section of substrate section 51a of the IC substrate 51, and it is constituted.

[0043] Thus, it sets for the fixed means 44 constituted. Although the engagement holes 56 and 56 which the bosses 45 and 45 by whom projection formation is done are formed in the configuration where the hook-like points 45a and 45a projected outside, and are formed in the receipt crevice 42 by the side of the bottom half 34 at substrate section 51a of the IC substrate 51 are mostly formed at this spacing with bosses' 45 and 45 spacing As shown in A of drawing 7 , the width of face of the engagement holes 56 and 56 has extended only the width method b almost equal to the projection length dimension a to the outside of bosses' 45 and 45 hook-like points 45a and 45a inside.

[0044] Thus, in order to carry out fitting immobilization of the IC substrate 51, the bosses 45 and 45 and the engagement holes 56 and 56 which were mentioned above are engaged with the receipt crevice 42 by the side of the bottom half 34 formed. This engagement by making the engagement holes 56 and 56 of that substrate section 51a correspond to the bosses 45 and 45 of the receipt crevice 42, and pushing in the IC substrate 51, as shown in B of drawing 7 Although the outside surface side of the hook-like points 45a and 45a will be pressed by the common-law marriage of the outside inner surface of the engagement holes 56 and 56 and bosses 45 and 45 will bend inside Since the engagement holes 56 and 56 can be opened inside as mentioned above, also after bosses 45 and 45 have bent, the hook-like points 45a and 45a will correspond to the engagement holes 56 and 56 in the shape of fit-in.

[0045] In this condition, the engagement holes 56 and 56 pass bosses' 45 and 45 hook-like points 45a and 45a, and correspond to Motobe, bosses 45 and 45. By this Bosses 45 and 45 are restored, as the hook-like points 45a and 45a are shown in drawing 5 , it projects in the outside surface side of the engagement holes 56 and 56, and engages with the rim of an outside inner surface, and fitting immobilization of the IC substrate 51 is carried out in the receipt crevice 42 by the side of the bottom half 34. The protective layer 54 of the IC substrate 51 is fitted in the opening-like hold section 43 of the receipt crevice 42 in this condition, it will be close to the inner surface of the receipt crevice 42 of substrate section 51a, and the connection terminal 55 is expressed at the underside side of the bottom half's 34 base section 34a.

[0046] Thus, the connection window part 46 corresponding to the connection terminal 55 of the IC substrate 51 is formed in the slider 40 by which the IC substrate 51 slides in a cross direction, i.e., a closing location and the aperture location direction, corresponding to the bottom half 34 by whom fitting immobilization was done in the condition slid on the aperture location to the bottom half 34, and this connection window part 46 is divided and formed in plurality corresponding to the number of the connection terminals 55. Moreover, in order to prevent the contact of the bosses 45 and 45 for immobilization of the IC substrate 51 by which projection

formation was carried out to the bottom half's 34 receipt crevice 42 at the inner surface side of this slider 40, the concave surface section 47 is formed. From relation with the IC substrate 51, this concave surface section 47 surrounds the connection window part 46, and is formed.

[0047] the inside of the body 32 of a cassette with which it be blockaded by the front lid 39 and the slider 40 as mentioned above at the time of un-use it, and the opening 37 of the body 32 of a cassette, i.e., a tape guide, front opening between 37 and the bottom half 34 reel shaft insertion holes 35 and 35, and the pocket section 38 for loading of anterior part contained the magnetic tape will be in a sealing condition, and the tape cassette 31 of the gestalt of this implementation constitute as mentioned above will be protect for a receipt magnetic tape nearly thoroughly.

[0048] And terminal area 52b of the IC substrate 51 by which fitting immobilization was carried out at the underside, i.e., underside of bottom half's 34 base section 34a, side of the body 32 of a cassette As shown in drawing 8, when the slider 40 is considering as the sliding location in the closing location, it is in the location where the connection window part 46 shifted to the front, and other aspects correspond and are concealed, and from the exterior, the connection terminal 55 cannot be touched carelessly but is protected nearly thoroughly.

[0049] If a magnetic recorder and reproducing device is loaded with this tape cassette 31 in an activity, according to the device by the side of equipment, a slider 40 slides to a back aperture location, as shown in drawing 9, while the reel shaft insertion holes 41 and 41 are equivalent to the bottom half's 34 reel shaft insertion holes 35 and 35, anterior part will retreat from the pocket section 38, and the reel shaft insertion holes 35 and 35 and the pocket section 38 will be opened by this.

[0050] As the connection terminal 55 of this terminal area 52b will attend the connection window part 46, the connection window part 46 formed in the slider 40 at this time is outside exposed corresponding to terminal area 52b of the IC substrate 51 and it is shown in drawing 10 in this condition The external terminal 61 of the detection equipment (not shown) with which the magnetic recorder and reproducing device was equipped will connect, and the recording information of the magnetic tape within the body 32 of a cassette recorded on the IC chip 53 of the IC substrate 51, for example, address information, will be searched.

[0051] Thus, the IC substrate 51 fixed to the bottom half's 34 underside side The connection window part 46 can be formed in a slider 40, and terminal area side 52b can be seen by using sliding actuation of a slider 40. In the busy condition which loads a magnetic recorder and reproducing device with this tape cassette 31, the connection terminal 55 of the IC substrate 51 The connection window part 46 of a slider 40 can respond, it can expose, and an external connection terminal can be made to contact, and the connection terminal 55 is concealed and protected by the slider 40 in a non-busy condition, and breakage and dirt are prevented.

[0052] Moreover, when fixed to the receipt crevice 42 established in the underside side of the bottom half's 34 base section 34a by engagement for a fixed means, i.e., bosses 45 and 45 and the engagement holes 56 and 56, the IC substrate 51 Without the IC substrate 51 falling out unnecessarily during the assembly operation of the tape cassette 31, assembly operation can carry out easily and efficiently and can carry out like any [especially automatic assembly] tape cassette which does not use IC substrate convenient.

[0053] And since recording information, for example, address information, can be searched only with loading a magnetic recorder and reproducing device with the tape cassette 31 of the gestalt of this operation, without carrying out actuation transit of the magnetic tape The address retrieval area Ta of the point of the data area Td on magnetic tape T which was required when address information was being conventionally recorded on the magnetic tape, as shown in A of drawing 11 As shown in B of this drawing, it becomes unnecessary and only a data area Td will be formed on magnetic tape T, and while address retrieval time is reduced substantially, data volume will increase.

[0054] That is, since the address detection area Ta is in the point of magnetic tape T as shown in A of drawing 11 when it does not carry IC substrate which is storage element equipment in a tape cassette, at the time of ejection of a tape cassette, rewinding to a tape cut water becomes indispensable, but since it can eject immediately in the middle of a magnetic tape when IC

substrate is carried like the gestalt of this operation, the time amount for tape rewinding is shortened.

[0055] And when IC substrate is not carried, for example by the tape cassette of 125m of tape length, about 10 sec(s) (max) are required as retrieval time in the address retrieval area (less than 1m) Ta in the point of a tape. After this address retrieval, since usual rapid-traverse (FF) / rewinding (REW) are carried out to searching the required data area Td by 100 – 200 mm/sec, max will take the retrieval time of 60sec(s). On the other hand, when IC substrate is carried like the gestalt of this operation, the retrieval time mentioned above since it referred to loading actuation of a tape cassette in an instant is not required at all, therefore retrieval time can be shortened substantially.

[0056] Moreover, since address retrieval area becomes unnecessary at a magnetic tape when IC substrate is carried in a tape cassette, the capacity of the area part data increases. Moreover, since it becomes unnecessary to rewind a tape in address detection area each time, the count of contact of a magnetic tape and a head and the count of transit of a tape can decrease, and the improvement in endurance and the improvement in dependability in a magnetic tape can be aimed at.

[0057] Various kinds of gestalten can be carried out as a fixed means 44 against the body 32 of a cassette of the IC substrate 51 in the tape cassette 31 of the gestalt of this implementation constituted as mentioned above.

[0058] In the example of a gestalt of the fixed means 44 of the IC substrate 51 shown in drawing 12 – drawing 14 the inner skin section of the receipt crevice 42 established in the underside side of base section 34a of the bottom half 34 of the body 32 of a cassette — in detail Project the outside edge in the inner direction, and the engagement protruding edges 48 and 48 are formed in the both-sides surface part of width-of-face Hirobe 42a the first half in which the both sides of the hold section 43 are faced. He is first half width-of-face Hirobe 51a1 of substrate section 51a of the IC substrate 51 between the inside of these engagement protruding edges 48 and 48, i.e., the inner surface of the receipt crevice 42, and the inner surface of the engagement protruding edges 48 and 48. By carrying out insertion engagement of the edges-on-both-sides section, it is constituted so that the IC substrate 51 may be fixed to the receipt crevice 42.

[0059] The engagement immobilization to the receipt crevice 42 of the IC substrate 51 in this example of a gestalt First half width-of-face Hirobe 51a1 of substrate section 51a One side edge section is deeply inserted inside one engagement protruding edge 48 of the receipt crevice 42. By shifting the whole substrate section 51a in the engagement protruding edge 48 direction of another side in the condition of having made the side edge section of another side countering inside the engagement protruding edge 48 of another side, he is width-of-face Hirobe 51a1 in the first half. The edges-on-both-sides section engages with both the engagement protruding edges 48 and 48. Thereby, fitting immobilization is carried out in the receipt crevice 42, and the IC substrate 51 does not fall out unnecessarily.

[0060] Moreover, the example of a gestalt of the fixed means 44 of the IC substrate 51 shown in drawing 15 – drawing 17 is constituted so that the IC substrate 51 may be attached firmly with a check pin 49 in the condition of having fitted into the receipt crevice 42 by the side of the bottom half 34.

[0061] Namely, in this example of a gestalt, it sets to the thing of the proper part of the periphery section of substrate section 51a of the IC substrate 51, and a graphic display. First portion width-of-face Hirobe 51a1 The center of the edges-on-both-sides section, and the end-half narrow section 51a2 The engagement crevice 57 is formed in the center of the trailing-edge section. By inserting a check pin 49 in each engagement crevice 57 of the substrate section 51 from an outside in the condition of having fitted this IC substrate 51 into the receipt crevice 42 by the side of the bottom half 34, and embedding to the inner surface of the receipt crevice 42, it is constituted so that fitting immobilization of the IC substrate 51 may be carried out in the receipt crevice 42. Thus, by constituting, fitting immobilization is carried out nearly thoroughly [the receipt crevice 42], and the IC substrate 51 does not fall out unnecessarily.

[0062] Furthermore, the example of a gestalt of the fixed means 44 of the IC substrate 51 shown in drawing 18 – drawing 20 is constituted so that the IC substrate 51 may be fixed by welding in

the condition of having fitted into the receipt crevice 42 by the side of the bottom half 34.

[0063] Namely, in this example of a gestalt, it sets to the thing of the proper part of the periphery section of the receipt crevice 42 by the side of the bottom half 34, and a graphic display. Projection formation of the engagement boss 50 is carried out in the first half at one in the center of the trailing-edge section of backside [the edges-on-both-sides section of width-of-face Hirobe 42a] Morozumi, and end-half narrow section 42b. It corresponds to the engagement boss 50 by the side of this receipt crevice 42, and he is width-of-face Hirobe 51a1 the periphery section of substrate section 51a of the IC substrate 51, i.e., the first half. Backside [the edges-on-both-sides section] both corners, and the second half section narrow section 51a2 The engagement crevice 58 is formed in the center of the trailing-edge section, and the fixed means 44 is constituted.

[0064] and the IC substrate 51 is engaged with the receipt crevice 42 by the side of the bottom half 34, it engages each engagement crevice 58 of substrate section 51a with the engagement boss 50, and immobilization of the IC substrate 51 by this fixed means 44 fits in, and carries out melting of each engagement boss's 50 head by the ultrasonic welding horn 62 in the state of this fitting -- making -- substrate section 51a of the IC substrate 51 is fixed to the receipt crevice 42 by closing.

[0065] Also in each example of a gestalt of the fixed means 44 of the IC substrate 51 constituted as mentioned above, the IC substrate 51 can work easily, without certainly being fixed to the receipt crevice 42 by the side of the body 32 of a cassette, and dropping out unnecessarily during the assembly activity of the tape cassette 31.

[0066] As mentioned above, although the gestalt of operation of this invention was explained, this invention is not limited to the gestalt of this operation, and can be variously changed in the range which does not deviate from the meaning of this invention.

[0067] For example, without restricting to the underside side of the body of a cassette, as long as the aspect which fixes IC substrate as storage element equipment is an aspect corresponding to the slider as a callus, it may be the side-face side of the body of a cassette. Moreover, the stowage of the protective layer of IC chip formed in the fitting crevice which fixes this IC substrate can be formed in a concave, without, as for the adult case, the thickness of the formation surface part of a fitting crevice penetrating this surface part, and forming. Moreover, the configuration configuration of IC substrate cannot be restricted to the thing of a graphic display, and can be made into the configuration and configuration which IC chip and the connection terminal area as the configuration according to a configuration etc., for example, the storage section, of a fixed part side left.

[0068] And this invention is not applied only to the tape cassette equipped with the slider as a callus which can be opened and closed, and is applied to the disk cartridge equipped with the shutter as a callus which contains a disk-like record medium, and opens and closes opening etc.

[0069]

[Effect of the Invention] As mentioned above, the record-medium receipt cassette by this invention To the aspect to which the callus of the body of a cassette equipped with the callus which opens and closes predetermined opening corresponds By having fixed the storage element equipment with which necessary information is memorized, and having constituted so that the connection terminal of this storage element equipment might be exposed by aperture actuation of a callus At the time of un-using it, by the callus, it is concealed, a connection terminal is protected, breakage, dirt, etc. can be prevented, and it is exposed at the time of an activity, and certainly, storage element equipment can contact and can be connected with an external terminal.

[0070] Moreover, storage element equipment can perform assembly operation efficiently, without dropping out unnecessarily during the assembly activity of a cassette by fixing to the body of a cassette through a fixed means.

[0071] And while being able to shorten substantially the access time to the record medium contained inside by fixing storage element equipment to the body of a cassette in this way, when address retrieval area becomes unnecessary, data-logging capacity will increase a record medium.

[Translation done.]

*** NOTICES ***

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- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.*** shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is a perspective view from the underside side which the tape cassette of an example which applied this invention decomposed the part.

[Drawing 2] It is the bottom view of the bottom half of the tape cassette shown in drawing 1 .

[Drawing 3] It is a perspective view by the side of the inner surface of the slider of the tape cassette shown in drawing 1 .

[Drawing 4] It is a top view in the condition of having fixed IC substrate to the tape cassette shown in drawing 1 .

[Drawing 5] It is a cross-sectional view in drawing 4 .

[Drawing 6] It is drawing of longitudinal section in drawing 4 .

[Drawing 7] In the explanatory view explaining the process which fixes IC substrate shown in drawing 4 , A shows the condition before immobilization, and B shows a fixed halfway condition in it.

[Drawing 8] It is the bottom view of the non-busy condition of the tape cassette shown in drawing 1 .

[Drawing 9] It is the bottom view of the busy condition of the tape cassette shown in drawing 1 .

[Drawing 10] It is the enlarged vertical longitudinal sectional view of the important section in the busy condition of the tape cassette shown in drawing 9 .

[Drawing 11] In the explanatory view which contrasts the record condition of the magnetic tape of the tape cassette which applied this invention, and the conventional tape cassette, A shows the record condition of the magnetic tape of the conventional tape cassette, and B shows the record condition of the magnetic tape of the tape cassette which applied this invention.

[Drawing 12] It is the top view of the other examples in the condition of having fixed IC substrate to the tape cassette shown in drawing 1 .

[Drawing 13] It is a cross-sectional view in drawing 12 .

[Drawing 14] It is drawing of longitudinal section in drawing 12 .

[Drawing 15] It is the top view of the other examples in the condition of having fixed IC substrate to the tape cassette shown in drawing 1 .

[Drawing 16] It is a cross-sectional view in drawing 15 .

[Drawing 17] It is drawing of longitudinal section in drawing 15 .

[Drawing 18] It is the top view of other examples at the pan in the condition of having fixed IC substrate to the tape cassette shown in drawing 1 .

[Drawing 19] It is a cross-sectional view in drawing 18 .

[Drawing 20] It is drawing of longitudinal section in drawing 18 .

[Drawing 21] It is the decomposition perspective view of the conventional DAT tape cassette.

[Drawing 22] It is the appearance perspective view of the tape cassette shown in drawing 21 .

[Drawing 23] With the underside side perspective view of the tape cassette shown in drawing 21 and drawing 22 , A shows a non-busy condition and B shows a busy condition.

[Drawing 24] It is the perspective view of the bottom half of other conventional tape cassettes.

[Drawing 25] It is the top view of IC substrate built into the tape cassette shown in drawing 24 .

[Drawing 26] It is the cross-sectional view of IC substrate shown in drawing 25 .

[Drawing 27] A shows the condition before incorporating IC substrate in the explanatory view explaining the process incorporating IC substrate shown to the bottom half who shows drawing 24 at drawing 25 , and B shows the condition of having incorporated IC substrate.

[Description of Notations]

31 a tape cassette and 32 .. the body of a cassette, and 33 .. a top half and 34 .. a bottom half and 34a .. the base section and 40 .. a slider and 42 .. a receipt crevice and 43 .. the hold section and 44 .. a fixed means and 45 .. a boss and 46 .. a connection window part and 51 -- .. -- IC substrate and 51a .. -- the substrate section and 53 .. -- IC chip and 54 .. a protective layer and 55 .. a connection terminal and 56 .. an engagement hole

[Translation done.]